

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/003043 A1

(51) International Patent Classification⁷: **C08F 293/00**,
2/18, 4/40, C08J 9/26, G01N 30/48, C08G 83/00

(74) Agents: **KILANDER, Annika et al.**; Amersham Bio-
sciences AB, Björkgatan 30, S-751 84 Uppsala (SE).

(21) International Application Number:
PCT/SE2003/001017

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 17 June 2003 (17.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0202016-2 27 June 2002 (27.06.2002) SE

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **AMER-
SHAM BIOSCIENCES AB** [SE/SE]; Patents Depart-
ment, Björkgatan 30, S-751 84 Uppsala (SE).

(72) Inventors; and

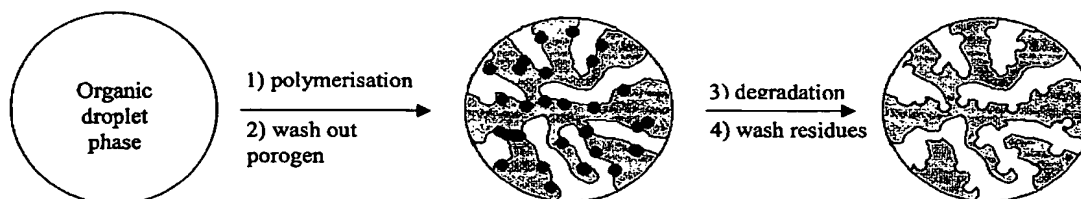
(75) Inventors/Applicants (*for US only*): **BUSSON, Philippe**
[FR/SE]; Amersham Biosciences AB, Björkgatan 30,
S-751 84 Uppsala (SE). **PALMGREN, Ronnie** [SE/SE];
Amersham Biosciences AB, Björkgatan 30, S-751 84 Up-
psala (SE). **MORRISON, Michael** [GB/SE]; Östervägen
8, S-169 52 Solna (SE).

Published:

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: POLYMERIC SUPPORT HAVING NOVEL PORE STRUCTURES



(57) Abstract: The invention is a method of producing a cross-linked polymeric support having a multimodal pore structure, which comprises providing a degradable initiator molecule; providing an organic phase comprising said initiator molecule, radically polymerisable monomers and a porogen in a solvent; providing an aqueous phase comprising a transition metal catalyst; suspension polymerisation of the organic phase by adding a ligand, co-ordinating to the transition metal in the aqueous phase to produce a cross-linked polymeric support having a primary pore structure and comprising initiator molecule; and subjecting the support obtained to degrading conditions to remove the initiator molecule from within the support to produce a cross-linked polymeric support having a secondary pore structure in addition to the primary pore structure.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PU 0240-SE.	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/SE 03/01017	International filing date (day/month/year) 17 June 2003	(Earliest) Priority Date (day/month/year) 27 June 2002
Applicant Amersham Biosciences AB et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

COPY

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 03/01017

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: C08F 293/00, C08F 2/18, C08F 4/40, C08J 9/26, G01N 30/48, C08G 83/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: C08F, C08J, C08G, B01J, G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, CAPLUS, SCI-SEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0222718 A2 (NILSSON, KJELL G.C.), 20 May 1987 (20.05.87) --	1-19
P,A	Polymer Preprints, volume 43, no 2, 2002, Mir Mukkaram Ali et al: "Mechanism of Capsule Formation by Suspension Atom Transfer Radical Polymerization", pages 59-60 --	1-19
A	US 5763548 A (KRZYSZTOF MATYJASZEWSKI ET AL), 9 June 1998 (09.06.98) --	1-14

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search

12 Sept. 2003

Date of mailing of the international search report

17 -09- 2003

Name and mailing address of the ISA/
 Swedish Patent Office
 Box 5055, S-102 42 STOCKHOLM
 Facsimile No. +46 8 666 02 86

Authorized officer

Erika Stenroos/Elis
 Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 03/01017

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Macromolecules, volume 35, 2002, Bob De Clercq et al: "Atom Transfer Radical Polymerization of Vinyl Monomers Mediated by Schiff Base Ruthenium-Alkylidene Catalysts and the Adventitious Effect of water in Polymerizations with the Analogous Cationic Complexes", pages 8943-8943 --	1-14
A	Polymer, volume 43, 2002, Anna Carlmark et al: "Atom transfer radical polymerization of methyl acrylate from a multifunctional initiator at ambient temperature", pages 4237-4242 --	1-14
A	WO 9950310 A1 (CARNEGIE MELLON UNIVERSITY), 7 October 1999 (07.10.99) -- -----	1-14

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 03/01017

Patent document cited in search report				Publication date		Patent family member(s)		Publication date	
EP	0222718	A2	20/05/87	DE	3689327	D,T	16/06/94		
				JP	2118094	C	06/12/96		
				JP	8030124	B	27/03/96		
				JP	62169837	A	27/07/87		
				SE	464816	B,C	17/06/91		
				SE	8504764	A	16/04/87		
				US	4935365	A	19/06/90		
				US	5015576	A	14/05/91		

US	5763548	A	09/06/98	AU	720512	B	01/06/00		
				AU	5306996	A	16/10/96		
				BR	9604887	A	30/11/99		
				CA	2216853	A	03/10/96		
				CN	1183107	A	27/05/98		
				EP	0817806	A	14/01/98		
				IL	117626	D	00/00/00		
				JP	3040172	B	08/05/00		
				JP	10509475	T	14/09/98		
				US	6407187	B	18/06/02		
				US	6512060	B	28/01/03		
				US	6541580	B	01/04/03		
				US	2002193538	A	19/12/02		
				WO	9630421	A	03/10/96		

WO	9950310	A1	07/10/99	AU	3181599	A	18/10/99		
				EP	1084151	A	21/03/01		
				JP	2002509948	T	02/04/02		
				US	6069587	A	30/05/00		
				US	6121371	A	19/09/00		
